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Applicant(s): BROTHER KOGYO KABUSHIKI KAISHA

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[ Inventor]	
[ Address or Residence]	c/o BROTHER KOGYO KABUSHIKI KAISHA No. 15-1, Naeshiro-cho, Mizuho-ku, Nagoya-shi, Aichi-ken, Japan
[ Name]	Hideki YAMAMOTO
[ Applicant]	
[ Identification Number]	000005267
[ Name]	BROTHER KOGYO KABUSHIKI KAISHA
[ Representative]	Yoshihiro YASUI
[ Agent]	
[ Identification Number]	100085291
[ Patent Attorney]	
[ Name]	Minoru TORISU
[ Tel]	078-392-5115
[ Agent]	
[ Identification Number]	100107825
[ Patent Attorney]	
[ Name]	Yoshio HOSOMI

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[Document Name] Specification

[Title of the Invention] Image Recording Device

[Claims]

5 [Claim 1] An image recording device comprising a  
cover member for closing an open top of a main casing and  
supported so as to rotate to slant downward to the front, a  
recording section installed in the main casing for recording  
images on a recording paper, and a recording paper discharge  
tray mounted on the front end of the main casing for  
10 receiving the recording paper discharged from the recording  
section, characterized by that the recording paper discharge  
tray slants upward to the front when in use and capable of  
moving downward by contacting the cover member when the  
cover member is open.

15 [Claim 2] The image recording device as claimed in  
claim 1, wherein the recording paper discharge tray is  
supported to slant upward to the front by an urging member.

[Claim 3] The image recording device as claimed in  
claim 2, wherein the urging member is a leaf spring that  
20 contacts and supports central portion in the lateral  
direction of the recording paper discharge tray from below.

[Claim 4] The image recording device as claimed in  
claim 2, wherein the leaf spring is provided below the main  
casing formed with an opening and positioned below the  
25 recording paper discharge tray, and the recording paper

discharge tray includes a protruding portion that protrudes downward, and the protruding portion contacts the leaf spring through the opening.

[Claim 5] The image recording device as claimed in  
5 any one of claims 1 to 4, wherein the cover member includes an image reading section for reading original image and a document discharge tray for receiving the document discharged from the image reading section, the document discharge tray being rotatably supported by the front end of  
10 the reading section and maintained at a predetermined angle when in use and being capable of rotating in a direction opposite to the rotating direction of the image reading section.

[Claim 6] The image recording device as claimed in  
15 claim 5, further comprising a recording paper feeding section for storing a stack of paper, wherein the image reading section and the recording paper feeding section are provided in the front and rear of the upper surface of the main casing.

20 [Detailed Description of the Invention]

[0001]

[Field of the Invention]

The present invention relates to an image recording device, and more particularly to attachment of a recording  
25 paper discharge tray that receives recording paper

discharged from a recording section.

[0002]

[Related Art]

Multi-functional devices having multiple functions,  
5 such as printer function, facsimile function, image scanner  
function, and copier function, are known in the art.

[0003]

Fig. 6 is an external-perspective view of this type of  
multi-functional device. Fig. 7 is a cross-sectional view  
10 showing the multi-functional device. Fig. 8 is a cross-  
sectional view showing the device in which an image reading  
unit has been rotated. The multi-functional device 100  
includes a pair of left and right side covers 2 and 3 of an  
main casing 8, between which an image reading unit 4 for  
15 reading images from a document is rotatably mounted on a  
shaft 22. In the main casing 8, a recording section 5 for  
recording images is disposed. The image reading unit 4 is  
disposed to vertically overlap and partially cover the  
recording section 5 to reduce the size of the main casing 8  
20 and to save space. A recording paper cassette 6 is mounted  
on the back portion of the main casing 8 for storing a stack  
of recording paper.

[0004]

An operation panel 7 is disposed on the top surface of  
25 the image reading unit 4, and a document support portion 9

is disposed on the back portion of the image reading unit 4 for supporting facsimile or copy originals. A document discharge portion 10 is provided on the front surface of the main casing 8. A document discharge tray 12 is mounted on mounting members 11' of the document discharge portion 10. A recording paper discharge portion 13 is disposed below the document discharge portion 10. A recording paper discharge tray 14 is mounted on the recording paper discharge portion 13.

[0005]

Fig. 9 is a plan view in which attachment portions of the document discharge tray 12 and the image reading unit 4 are shown in cross section. The document discharge tray 12 is attached to the image reading unit 4 by engaging protrusions 54 of protruding pieces 53 of the document discharge tray 12 with holes 52 formed in a bottom surface rib 51 of the image reading unit 4. Further, a predetermined angle is maintained by engaging the upper ends of the protruding pieces 53 with the bottom surface ribs 51, 56 of the image reading unit 4.

[0006]

According to the multi-function device 100, because the image reading unit 4 is supported so as to be rotatable with respect to the main casing 8 at both sides. When removing paper jammed at the recording section 5 or

supplying ink to the recording section 5, it is possible to open a space above the recording section 5 by rotating the image reading unit 4 as shown in Fig. 8. That is, the image reading unit 4 functions as a cover member of the recording section 5.

[0007]

However, in the conventional multi-functional device 100 described above, when the reading unit 4 is rotated to open a space above the recording section 5 as shown in Fig. 8, the document discharge tray 12 also rotates along with the rotation of the image reading unit 4. As a result, the document discharge tray 12 abuts against the recording paper discharge tray 14. This restricts the rotation of the image reading unit 4 and prevents the image reading unit 4 from further rotating. That is, when the document discharge tray 12 abuts the recording paper discharge tray 14, the end section 12b of the document discharge tray 12 interferes with the end section 4a of the image reading unit 4, and the protruding piece 53 contacts the bottom surface rib 56, thereby prohibiting the document discharge tray 12 from changing its state (rotating) with respect to the image reading unit 4. Accordingly, it is not possible to rotate the image reading unit 4 to open a sufficient space above the recording section 5 while the document discharge tray 12 is being attached to the image reading unit 4. In order to



rotate the image reading unit 4 to open a sufficient space above the recording section 5, the document discharge tray 12 must be detached from the image reading unit 4, resulting in troublesome operation.

5 [0008]

Also, in order to attach the document discharge tray 12 to the image reading unit 4, the protruding pieces 53 of the document discharge tray 12 must be inserted to the mounting members 11' of the image reading unit 4 from below.

10 Therefore, an operator cannot visually confirm, from above the mounting members 11', the engagement between the protrusions 54 of the protruding pieces 53 and the holes 52 formed in the bottom surface rib 51 of the image reading unit 4. Thus, the attaching operation is difficult.

15 [0009]

The applicant of the present invention has proposed an image recording device (Japanese Patent Application No. HEI-10-2585). The image recording device includes a recording section for recording images on a recording paper and an  
20 image reading section for reading original images. The image reading section is supported so as to be rotatable to slant downward to the front with respect to a main casing for opening a space above the recording section, and a document discharge tray for receiving a document discharged  
25 from the image reading section is detachably supported on

the front end of the image reading section. The document discharge tray is maintained at a predetermined angle when in use and rotated in a direction opposite to the rotating direction of the image reading section.

5 [0010]

With this construction, because the document discharge tray can rotate in the direction opposite to the rotating direction of the reading section, when the image reading section is rotated to slant downward to the front with respect to the main casing in order to open a space above the recording section, the original discharge tray does not restrict the rotation of the image reading section, and a space can be widely opened above the recording section while the original discharge tray is being attached to the image reading section.

[0011]

In the conventional multi-functional device 100 shown in Fig. 7, the recording paper discharge tray 14 is mounted at a substantially horizontal angle. However, there is a demand to slant the recording paper discharge tray upward to the front so that the tray can mount a stack of recording paper orderly even if the stack contains a large number of sheets.

[0012]

25 [Problems to be Solved by the Invention]

However, when the recording paper discharge tray is supported to slant upward to the front, the document discharge tray contacts the recording paper discharge tray at a smaller rotational angle of the image reading unit compared to when the recording paper discharge tray is maintained at a substantially horizontal angle as shown in Fig. 7. As a result, by simply configuring the document discharge tray to be maintained at a predetermined angle when in use and to rotate in a direction opposite to the rotation direction of the image reading section as disclosed in Japanese Patent Application No. HEI-10-2585, it is not possible to open the open top of the main casing by rotating the image reading section serving as the cover member by a sufficiently large rotational angle. Thus, a space above the recording section is not sufficiently opened.

[0013]

Also, if the recording paper discharge tray is supported to slant upward to the front, even when the document discharge tray is dismounted from the image reading unit, the rotational angle of the image reading unit serving as the cover member is limited, so that a sufficient space can not be opened above the recording section.

[0014]

It is an object of the present invention to provide an image recording device wherein a space is opened above a

recording section by rotating a cover member, and wherein the cover member can rotate to open a sufficient space above the recording section.

[0015]

5 [Means for Solving the Problems]

To attain the above and other objects, an invention as claimed claim 1 is an image recording device including a main casing having an open top, a cover member for closing the open top of the main casing and supported so as to rotate to slant downward to the front, a recording section installed in the main casing for recording images on a recording paper, and a recording paper discharge tray mounted on the front end of the main casing for receiving the recording paper discharged from the recording section.

10

15 In the image recording device, the recording paper discharge tray slants upward to the front when in use and capable of moving downward by contacting the cover member when the cover member is open.

[0016]

20 According to the invention of claim 1, because the recording paper discharge tray slants upward to the front when recording images, the recording paper discharged from the recording section is stacked orderly on top of the recording sheet discharge tray to form an orderly stacked

25 paper thereon. On the other hand, when the cover member is

rotated to open the open top of the main casing, the recording paper discharge tray is displaced downward by contacting the cover member. Therefore, the recording paper discharge tray does not restrict the opening movement of the cover member and thus allows the cover member to rotate by a large rotation angle, thereby widely opening a space above the recording section.

[0017]

An invention as claimed in claim 2 is the image recording device as claimed in claim 1, wherein the recording paper discharge tray is supported to slant upward to the front by an urging member.

[0018]

According to the invention of claim 2, since the recording paper discharge tray is supported to slant upward to the front by the urging member, the recording paper discharge tray is smoothly displaced downward against the urging force of the urging member by contacting the cover member. When released from the contact with the cover member, the recording paper discharge tray is returned to slant upward to the front by the urging force (restoring force) of the urging member.

[0019]

An invention as claimed in claim 3 is the image recording device as claimed in claim 2, wherein the urging

member is a leaf spring that contacts and supports central portion in the lateral direction of the recording paper discharge tray from below.

[0020]

5           According to the invention as disclosed in claim 3, the urging member is a leaf spring, so that a configuration is simple. Further, since the leaf spring contacts and supports the central portion in the lateral direction of the recording paper discharge tray from bottom, the recording  
10 sheet discharge tray is stably supported regardless of the volume of stacked paper.

[0021]

          An invention as claimed in claim 4 is the image recording device as claimed in claim 2, wherein the leaf  
15 spring is provided below the main casing formed with an opening and positioned below the recording paper discharge tray, and the recording paper discharge tray includes a protruding portion that protrudes downward, and the protruding portion contacts the leaf spring through the  
20 opening.

[0022]

          According to the invention as claimed in claim 4, because the leaf spring is disposed below and concealed by the main casing, disposing the leaf spring does not effect  
25 the overall appearance of the device. Further, because the

protruding portion of the recording paper discharge tray is in contact with the leaf spring through the opening, the load due to the contact with the cover member is quickly transferred to the leaf spring, displacing the recording paper discharge tray downward.

[0023]

An invention as claimed in claim 5 is the image recording device as claimed in any one of claims 1 to 4, wherein the cover member includes an image reading section for reading original image and a document discharge tray for receiving the document discharged from the image reading section, the document discharge tray being rotatably supported by the front end of the reading section and maintained at a predetermined angle when in use and being capable of rotating in a direction opposite to the rotating direction of the image reading section.

[0024]

According to the invention as claimed in claim 5, because the document discharge tray can rotate in the direction opposite to the rotating direction of the image reading section, when the image reading section is rotated to slant downward to the front with respect to the main casing in order to open a space above the recording section, the document discharge tray does not restrict the rotation of the image reading section. Therefore, even if the

document discharge tray is being attached to the image reading section, a space can be widely opened above the recording section, and the cover member can open with a large opening angle.

5 [0025]

An invention as claimed in claim 6 is the image recording device as claimed in claim 5, further comprising a recording paper feeding section for storing a stack of paper, wherein the image reading section and the recording paper feeding section are provided in the front and rear of the upper surface of the main casing.

[0026]

According to the invention as claimed in claim 6, because the cover member (the image reading section and the document discharge tray) is rotated forward to open, when opening the over member, the cover member can be opened without abutting against the paper feeding section that is disposed to the rear portion of the main casing and protruding upward.

20 [0027]

[Embodiment]

Next, an image recording device according to an embodiment of the present invention will be described with reference to the accompanying drawings.

25 Fig. 1 is a cross sectional view showing main



components of a multi-functional device, which is the image recording device according to the embodiment. The multi-functional device 1 includes various functions, such as facsimile functions, printer functions, scanning functions, and copying functions.

[0028]

The multi-functional device 1 has a substantially same external appearance as that shown in Fig. 6. That is, a main casing 8 is formed in a box shape, and the left and right side surfaces are covered with side covers 2 and 3 as ornamental casing members. An image reading unit 4 (image reading section) for reading image from a document not shown in the drawings is disposed to freely rotate about a shaft portion 22 with respect to the main casing 8 at a position between the side covers 2 and 3. A recording section 5 for recording images on a recording paper is disposed inside the main casing 8. The image reading unit 4 is disposed to vertically overlap and partially cover the recording section 5, thereby conserving space. A recording paper cassette 6 for supporting a stack of recording paper is detachably mounted on the rear portion of the main casing 8.

[0029]

An operation panel 7 is disposed on the top surface of the image reading unit 4. The operation panel 7 includes an LCD display portion and a key operation portion. A document

support portion 9 is mounted on the rear portion of the image reading unit 4 to support a stack of copy originals to be copied when using the copy function or facsimile originals to be transmitted to another facsimile device when using the facsimile function. A document discharge portion 10 is provided on the front surface of the main casing. A document discharge tray 12 is mounted on a mounting portion 11 (see Fig. 2) of the document discharge portion 10. A recording paper discharge portion 13 is provided below the document discharge portion 10. A recording paper discharge tray 14 is mounted on the recording paper discharge portion 13. There are no particular restrictions on the materials used to form the document discharge tray 12 and the recording paper discharge tray 14. These trays could be formed of a synthetic resin, such as polypropylene, or a metal, such as an aluminum alloy, or could be formed of wire mesh.

[0030]

Fig. 2 is a plan view wherein attachment portions of the document discharge tray 12 and the mounting portion 11 of the image reading unit 4 are shown in cross section.

[0031]

The mounting portion 11 at the front end of the image reading unit 4 is formed with depressions 41, and the document discharge tray 12 is provided with protruding

pieces 43. Protrusions 44 are provided on the side surface of the protruding pieces 43. The depressions 41 are formed with holes 42 having a size corresponding to the protrusions 44. The size of the holes 42 is determined such that the protrusions 44 can rotate when fitted into the holes 42. The document discharge tray 12 is supported on the image reading unit 4 by the protrusions 44 being rotatably engaged with the holes 42. With this configuration, when mounting the document discharge tray 12 onto the image reading unit 4, the protruding pieces 43 of the document discharge tray 12 are fitted into the depressions 41 of the mounting portion 11 of the image reading unit 4 from above, and then the protrusions 44 are engaged with the holes 42. By this, the protruding portion 45 of the document discharge tray 12 engages with a bottom surface rib 46 of the image reading unit 4. As a result, the document discharge tray 12 is maintained at a predetermined angle with respect to the image reading unit 4, while enabling the document discharge tray 12 to rotate in a direction opposite the rotation direction of the image reading unit 4. Also, because an operator can attach the document discharge tray 12 to the mounting portion 11 of the image reading unit 4 while visually examining from above the mounting portion 11, the operator can easily attach the document discharge tray 12 to the mounting portion 11.

[0032]

Also, the recording paper discharge tray 14 is rotatably supported on a rotating shaft 61. A leaf spring 62 (urging member) supports the recording paper discharge tray 14 by contacting the central portion in the lateral direction of the recording paper discharge tray 14. The leaf spring 62 keeps the recording paper discharge tray 14 to slant upward to the front during an ordinary operation when paper is discharged via the recording paper discharge portion 13. On the other hand, when the image reading unit 4 is rotated (open), the recording paper discharge tray 14 can be displaced downward by the image reading unit 4 contacting the same. Accordingly, when the image reading unit 4 (cover member) is rotated to open a space above the recording section 5, the recording paper discharge tray 14 contacts the front end of the image reading unit 4 (the document discharge tray 12). As the image reading unit 4 is rotated further, the recording paper discharge tray 14 rotates about the rotating shaft 61 against the urging force of the leaf spring 62 and displaces downward. That is, the recording paper discharge tray 14 changes its orientation from an orientation to slant upward to the front to a horizontal orientation.

[0033]

As shown in Fig. 3, the leaf spring 62 is provided

beneath the main casing 8, which is formed with an opening 8a and located below the recording paper discharge tray 14. The leaf spring 62 extends along the rear surface of the main casing 8, and the base end of the leaf spring 62 is fixed to the main casing 8 via a screw 63. The recording paper discharge tray 14 includes a triangular protruding portion 14a that protrudes downward. The protruding portion 14a directly contacts the top surface of the leaf spring 62 through the opening 8a. The top surface of the leaf spring 62 is covered with an insulating film 64.

[0034]

Next, various components provided inside the main casing 8 will be described. The image reading unit 4 includes a scanner 15. The scanner 15 includes an image sensor 17, such as a CCD, CIS, or the like. The image sensor 17 is exposed to a conveying path 16 through which a document set on the document support portion 9 is conveyed. In the conveying path 16, there are disposed a separation roller 18 for separating and supplying the documents, a feed roller 19 for conveying the documents, and a discharge roller 20 for discharging the documents to the document discharge portion 10 after the reading. The image reading unit 4 is supported to rotate, into a state where the unit 4 slants downward to the front, about the shaft portion 22 on side plates (not shown) of the main casing 8 formed of metal,

so that a space can be opened above the recording section 5 whenever necessary. Thus, the image reading unit 4 functions as a cover member for closing and opening the open top of the main casing 8 in which the recording section 5 is disposed.

[0035]

The recording section 5 includes a recording head 25 of an inkjet printer for ejecting ink droplets. The recording head 25 is mounted together with an ink cartridge 27 on a carriage 26. During recording operations, the carriage 26 is moved by a driving mechanism not shown in the drawings in a direction perpendicular to the recording paper conveying direction while guided on a carriage shaft 28 based on print data.

[0036]

The recording paper cassette 6 includes a cassette case 31, a front cover 32, a support plate 33 urged by a spring 51 on which recording paper is set, and a feed roller 34. A sheet of paper P set on the recording paper cassette 6 is separated and conveyed to a conveying path 35 by the feed roller 34. Along the conveying path 35, there are provided a feed roller 36, a platen 37 opposing the recording head 25, and a discharge roller 38 for discharging the recording paper P to the recording paper discharge portion 13 after the image has been recorded. Drive

mechanism for driving each roller is omitted from the drawings.

[0037]

The document discharge tray 12 is provided with a support arm 12a which is foldable. When a document size is larger than the document discharge tray 12, the document discharge tray 12 supports such large document by extending the support arm 12a (Fig. 5 shows the support arm 12a in the extending state). The support arm could be detachably mounted on the document discharge tray 12.

[0038]

With this configuration, when the image reading unit 4 is rotated about the shaft portion 22 from the state shown in Fig. 4 to the state shown in Fig. 5 where the unit 4 slants downward to the front, the document support portion 9 positioned above the recording section 5 is moved toward the front of the recording section 5, thereby opening a space above the recording section 5. The document discharge tray 12 is configured to rotate in a direction opposite the rotating direction of the image reading unit 4 when the document discharge tray 12 moves downward and abuts the recording paper discharge tray 14 as the image reading unit 4 rotates to slant downward to the front. Therefore, the document discharge tray 12 changes its orientation with respect to the image reading unit 4 as shown in Fig. 5 so as

to not prevent the rotation of the image reading unit 4. Accordingly, when rotating the image reading unit 4 in order to open a space above the recording section 5, it is unnecessary to remove the document discharge tray 12 from the image reading unit 4.

[0039]

The recording paper discharge tray 14 is supported by the leaf spring 62 from below to slant upward to the front. Therefore, when the image reading unit 4 is rotated further, and when the recording paper discharge tray 14 contacts the image reading unit 4 and pressed downward via the document discharge tray 12, the recording paper discharge tray 14 smoothly displaces downward against the urging force of the leaf spring 62. This allows the image reading unit 4 to further rotate, thereby widely opening a space above the recording section 5. As a result, it is possible to exchange the ink cartridge 27 or to perform maintenance operation on the recording section 5.

[0040]

Also, the image reading unit 4 is rotated in the opposite direction to close the open top of the main casing 8, the image reading unit 4 is separated from the recording paper discharge tray 14. As a result, the recording paper discharge tray 14 is returned to slant upward to the front by the urging force (restoring force) of the leaf spring 62.



[0041]

At the same time, the document discharge tray 12 rotates relative to the image reading unit 4 by its own weight, and the protruding portion 45 of the document discharge tray 12 engages with the bottom surface rib 46 of the image reading unit 4 to maintain the predetermined angle of the document discharge tray 12 relative to the image reading unit 4 as shown in Fig. 4.

[0042]

In the embodiment described above, the present invention is applied to a multi-functional device including such functions as printer functions, facsimile functions, image scanner functions, and copy functions, and the cover member is described as an image reading unit. However, this is not a limitation of the present invention. For example, the present invention could be applied to an image recording device having only printer functions, and cover member could not have any special function.

[0043]

In the embodiment described above, the recording paper discharge tray is displaced downward when the document discharge tray, which is a portion of the covering member, contacts the recording paper discharge tray. However, the recording paper discharge tray could be displaced downward when the front edge of the image reading unit, which is a

portion of the covering member, directly contacts the recording paper discharge tray.

[0044]

In the embodiment described above, a leaf spring is used as the urging member. However, the urging member is not limited to a leaf spring, but could be a coil spring or the like. Also, a position to support the recording paper discharge tray is not limited to only the central portion in the lateral direction of the recording paper dispose tray.

The recording discharge tray could be supported at both left and right sides also. Alternatively, it could be supported only at the both left and right sides. Further, instead of supporting the recording paper discharge tray by the urging member contacting the same from below, it is possible to elastically support the recording paper discharge tray by suspending the tray from above. Further, the shape of the protruding portion on the recording paper discharge tray is not limited to a triangular shape. The protruding portion could be in any shape, providing the protruding portion can oppose the urging force of the urging member and displace the recording paper discharge tray downward.

[0045]

[Effects of the Invention]

According to the invention claimed in claim 1, because the recording paper discharge tray is maintained to slant

upward to the front when in use, the recording paper discharged from the recording section is stacked orderly on the recording paper discharge tray to provide an orderly stacked paper. When the cover member is open, the recording paper discharge tray can displace downward by contacting the cover member. Therefore, the recording paper discharge tray does not restrict the opening angle of the cover member, allowing the large opening angle of the cover member. Accordingly, maintenance operation on the recording section and exchange of the ink cartridge can be performed efficiently while the cover member is widely open.

[0046]

According to the invention as claimed in claim 2, because the recording paper discharge tray is supported by the urging member to slant upward to the front, the recording paper discharge tray is smoothly displaced downward against the urging force of the urging member by contacting the cover member. Also, when separated from the cover member, the recording paper discharge tray is returned by the urging force (restoring force) of the urging member into the normal state where the tray slants upward to the front.

[0047]

According to the invention as claimed in claim 3, because the urging member is a leaf spring, a mechanism can

be simple. Also, because the leaf spring supports and contacts the central portion in the lateral direction of the recording paper discharge tray from below, the recording paper discharge tray is always well-balanced and kept in a stable position regardless of the volume of stacked paper.

[0048]

According to the invention as claimed in claim 4, because the leaf spring is disposed below and covered with the main casing, it does not detract from the overall appearance of the device. Further, because the protruding portion of the recording paper discharge tray contacts the leaf spring through the opening in the main casing, the force generated by contacting the cover member is quickly transferred to the leaf spring, thereby displacing the recording paper discharge tray downward.

[0049]

According to the invention as claimed in claim 5, because the document discharge tray can rotate in a direction opposite the rotational direction of the image reading section, when the reading section is rotated to slant downward to the front with respect to the main casing so as to open a space above the recording section, the document discharge tray does not restrict the rotation of the image reading section, and it is possible to widely open a space above the recoding section while the document

discharge tray is being attached to the image reading section. Hence, it is possible to widely open a space above the recoding section while the document discharge tray is being attached to the image reading section, and there is no need to dismount the document discharge tray from the image reading section when performing maintenance operation on the recording section or exchanging an ink cartridge.

[0050]

According to the invention as claimed in claim 6, because the cover member (the document reading section and the document discharge tray) is rotated forward to open, the cover member does not hit the paper feeding section that is located on the rear section of the main casing and protrudes upwardly.

[Brief Description of the Drawings]

[Fig. 1]

A cross-sectional view of a multi-functional device according to an embodiment of the present invention.

[Fig. 2]

A plan view wherein contact portions of a document discharge tray and a mounting portion of an image reading unit are shown in cross section.

[Fig. 3]

A cross-sectional view showing a mechanism for supporting a recording paper discharge tray.

[Fig. 4]

An explanatory view showing the normal position of the image reading unit.

[Fig. 5]

5       An explanatory view showing the image reading unit that has been rotated.

[Fig. 6]

An external perspective view of a conventional image recording device.

10      [Fig. 7]

A cross-sectional view of the image recording device.

[Fig. 8]

A cross-sectional view showing the image recording device in which an image reading unit has been rotated.

15      [Fig. 9]

A plan view of the image recording device, wherein attaching portions of the document discharge tray and the image reading unit are shown in cross section.

[Description of Numberings]

20      1 multi-functional device

4 image reading unit (document reading section)

5 recording section

6 recording paper cassette

8 main casing

25      8a opening

- 12 document discharge tray
- 14 recording paper discharge tray
- 14a protruding portion
- 62 leaf spring
- 5 P recording paper

[Document Name]     Abstract

[Abstract]

[Object] To provide an image recording device in which a space can be opened above a recording section by rotating a cover member, wherein the cover member can be rotated to open a sufficient space above the recording section.

[Configuration]     A recording paper discharge tray 14 is elastically supported by a leaf spring 62 to slant upward to the front when in use.     When an image reading unit 4 including a document discharge tray 12 is opened, the recording paper discharge tray 14 is displaced downward against the urging force of the leaf spring 62 by contacting the image reading unit 12, thereby enabling the recording paper discharge tray 14 to widely open.

[Selected Drawing]   Fig. 3





Fig. 2

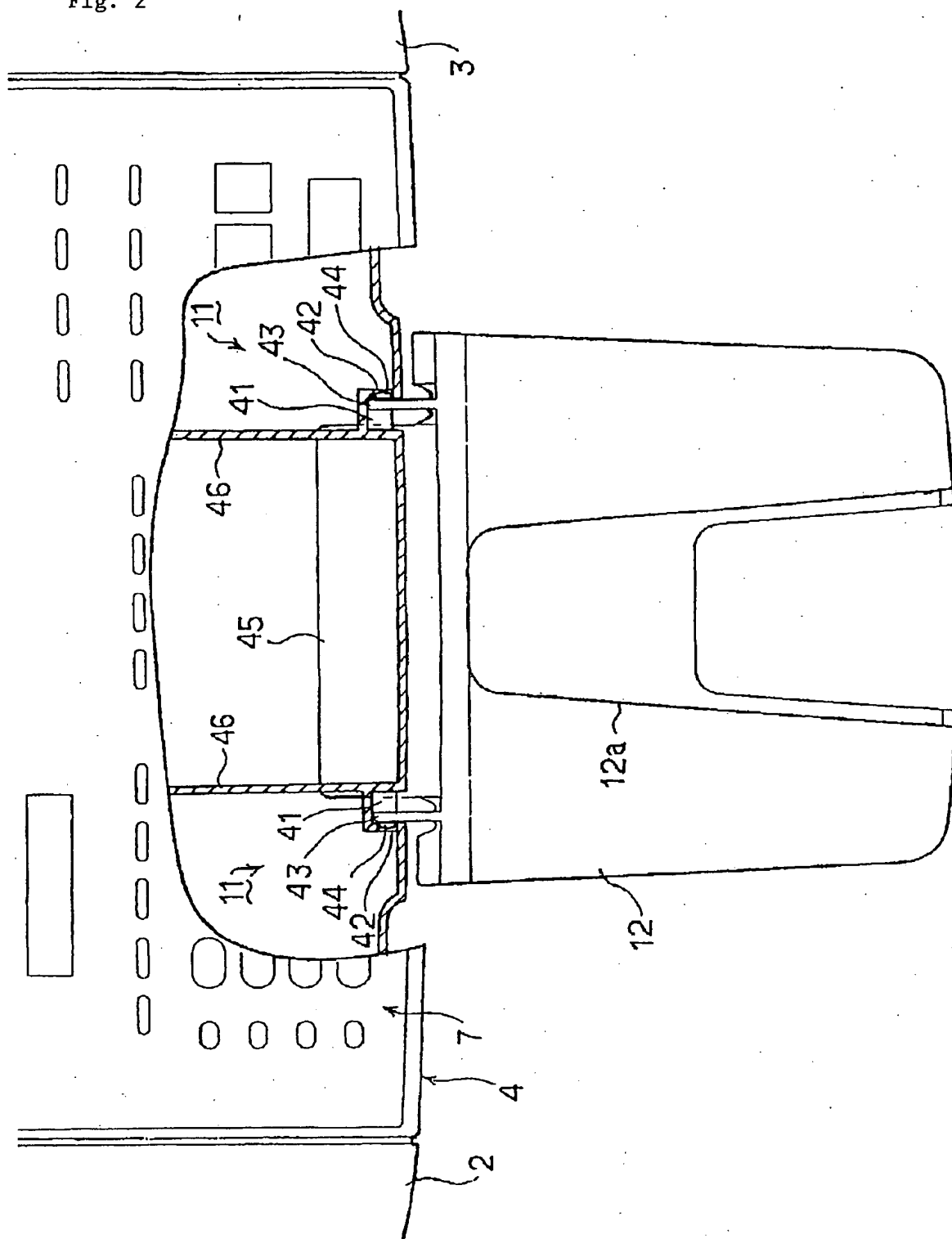


Fig. 3.

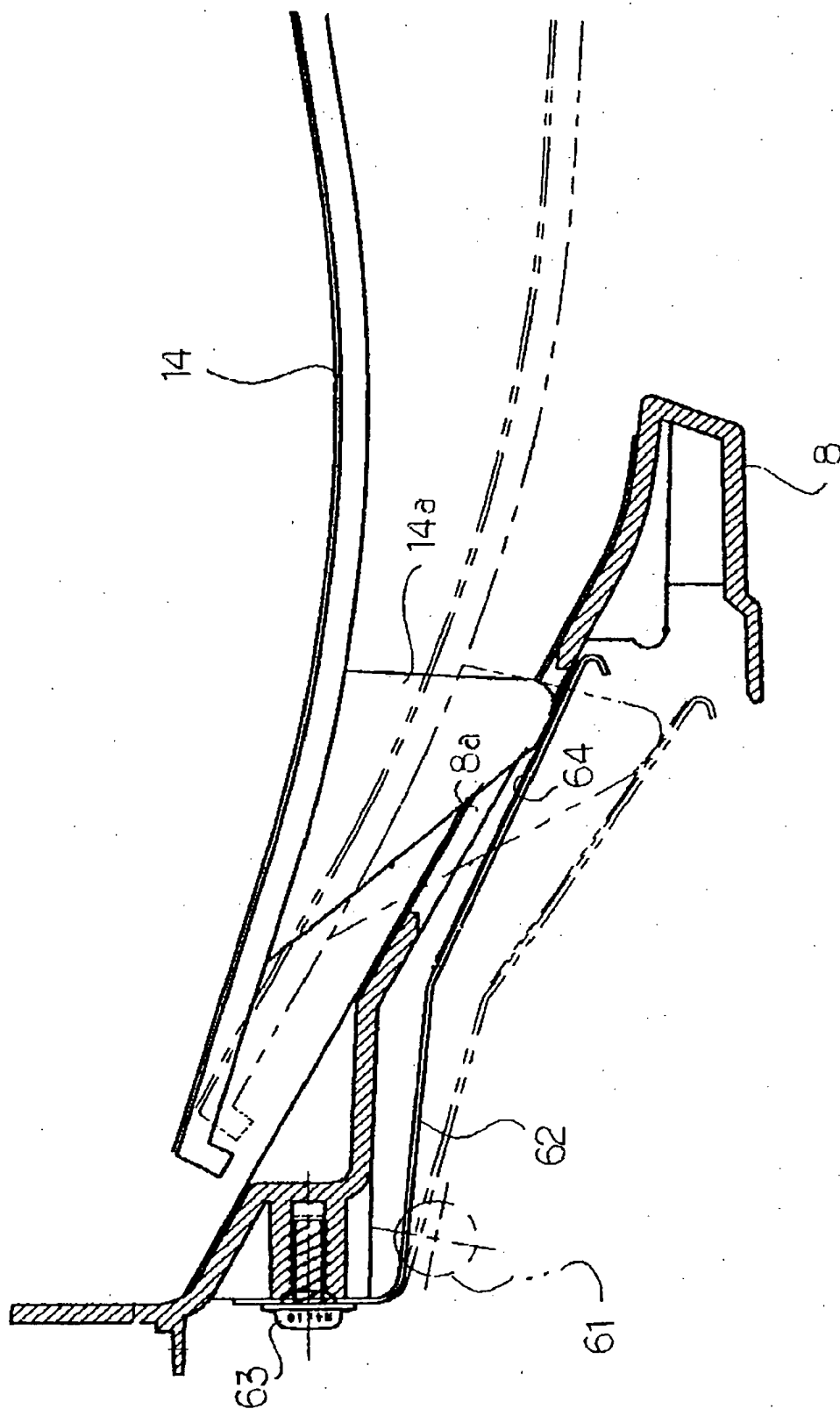


Fig. 4

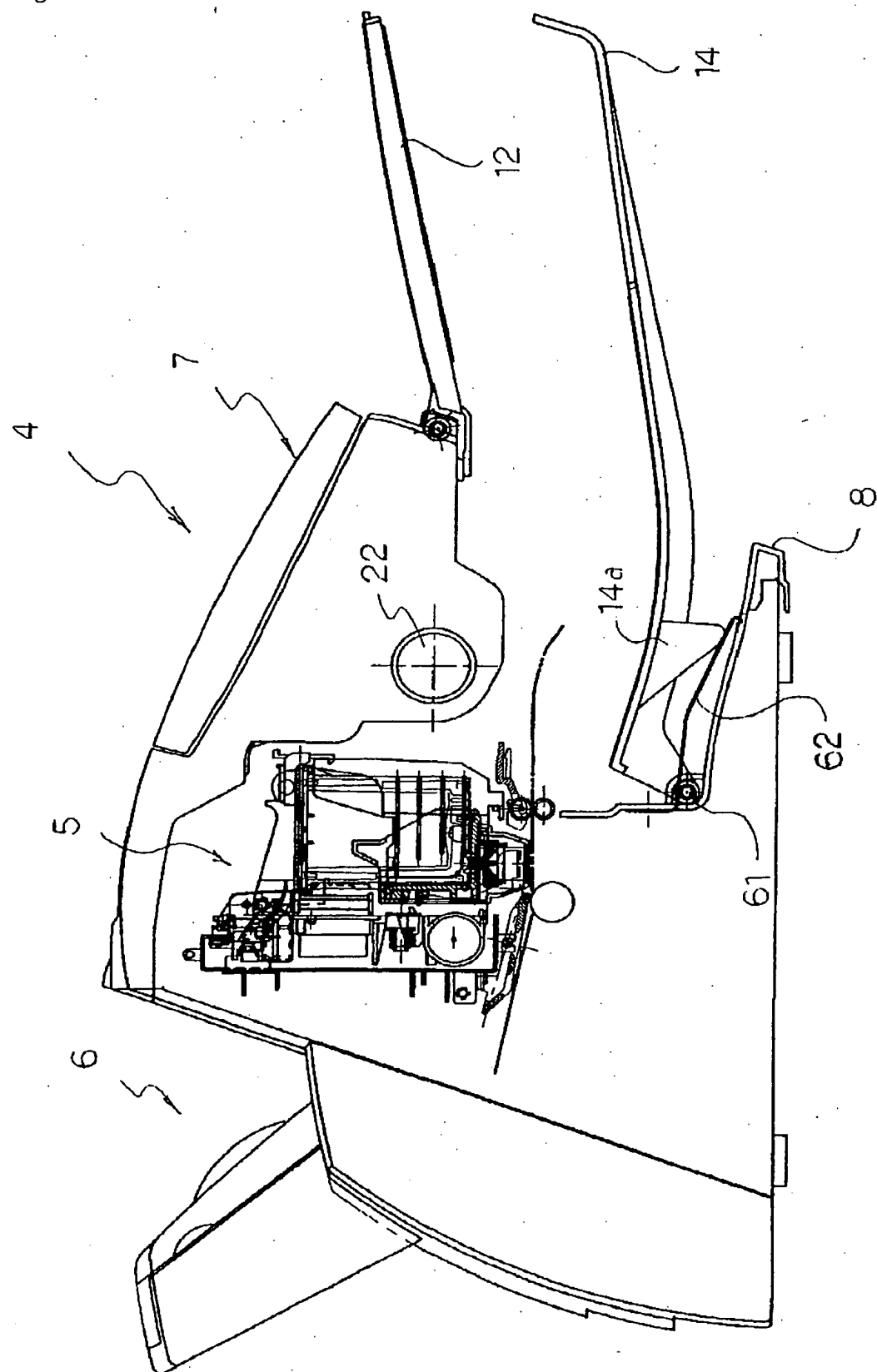


Fig. 5

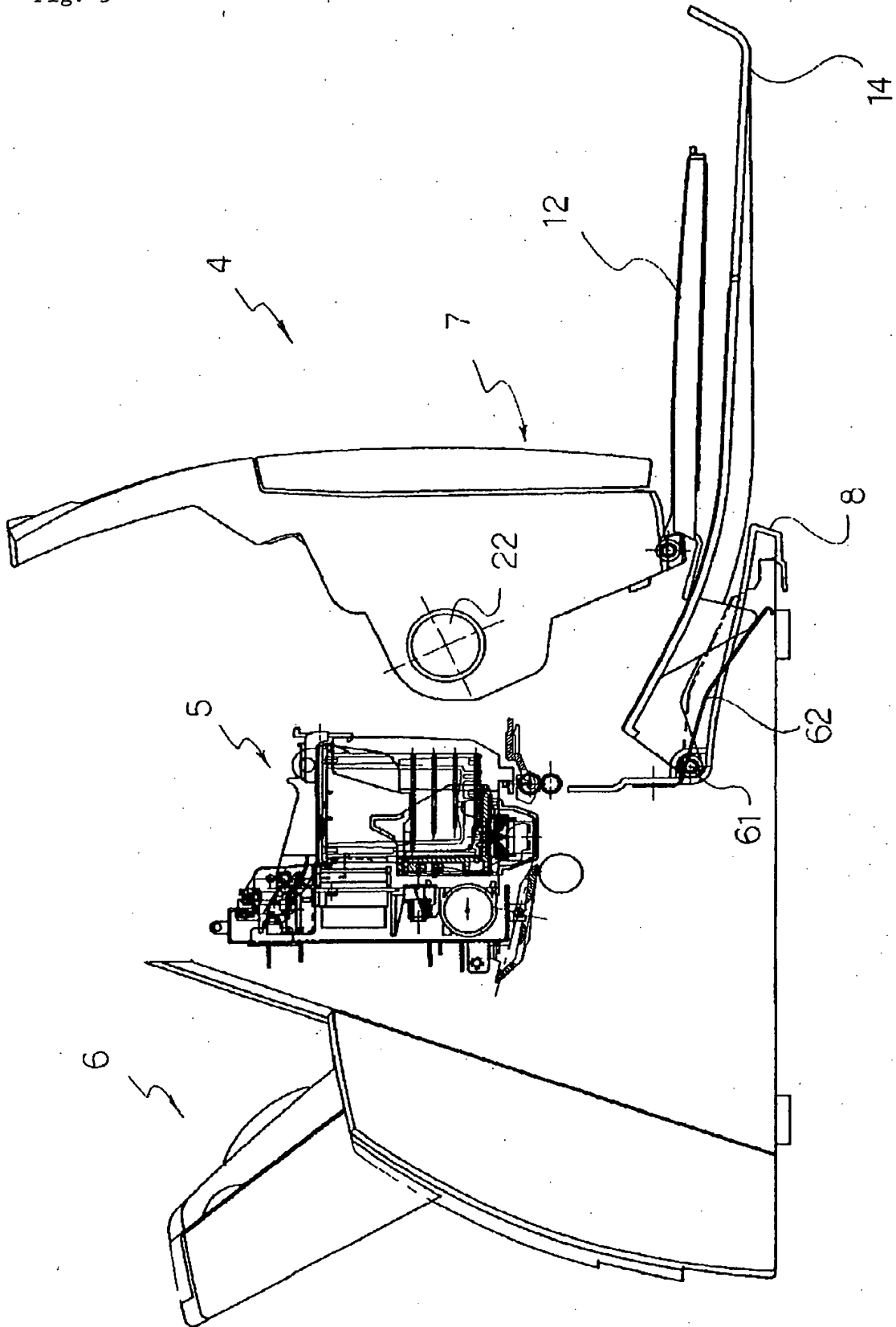


Fig. 6

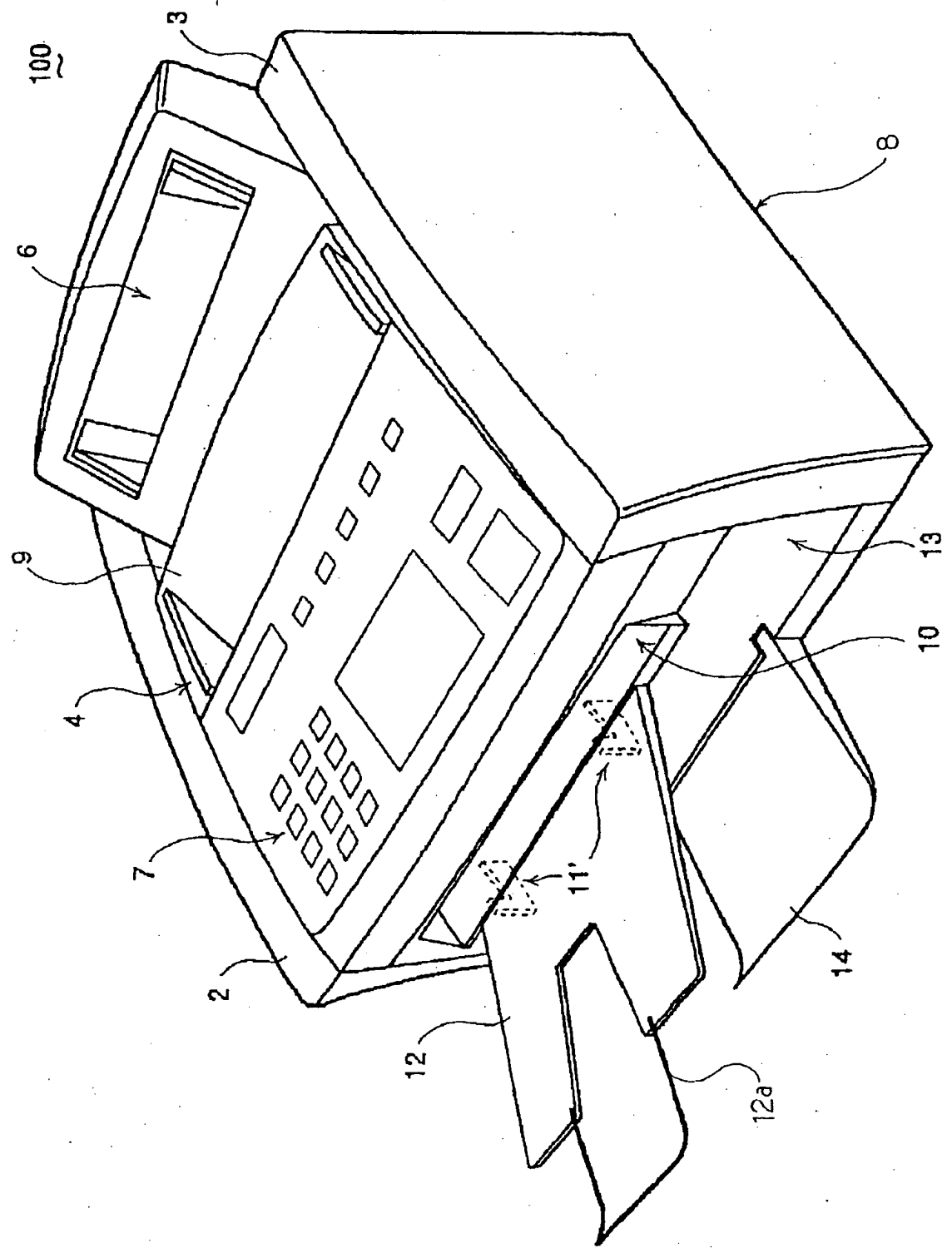


Fig. 7

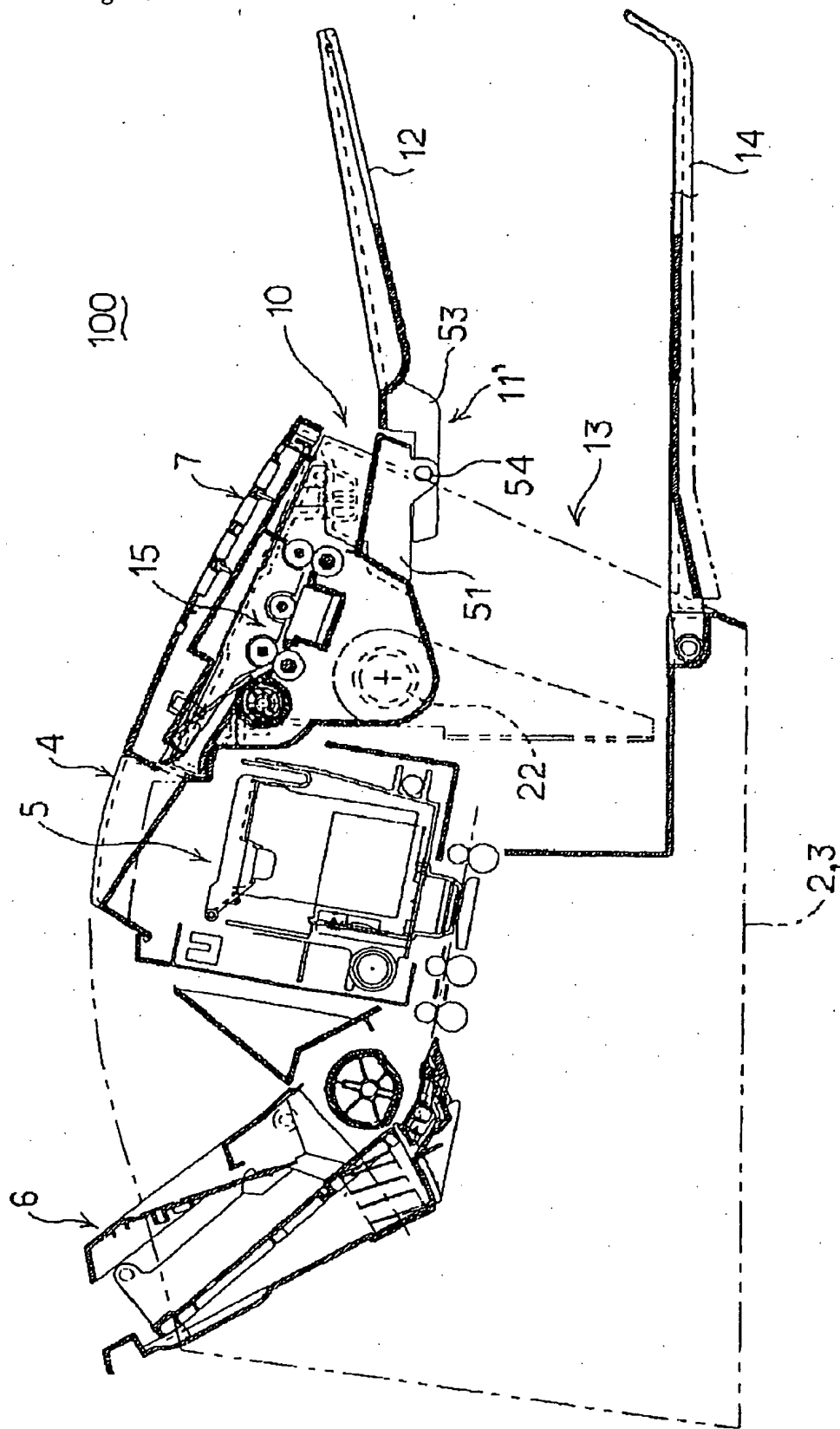


Fig. 8

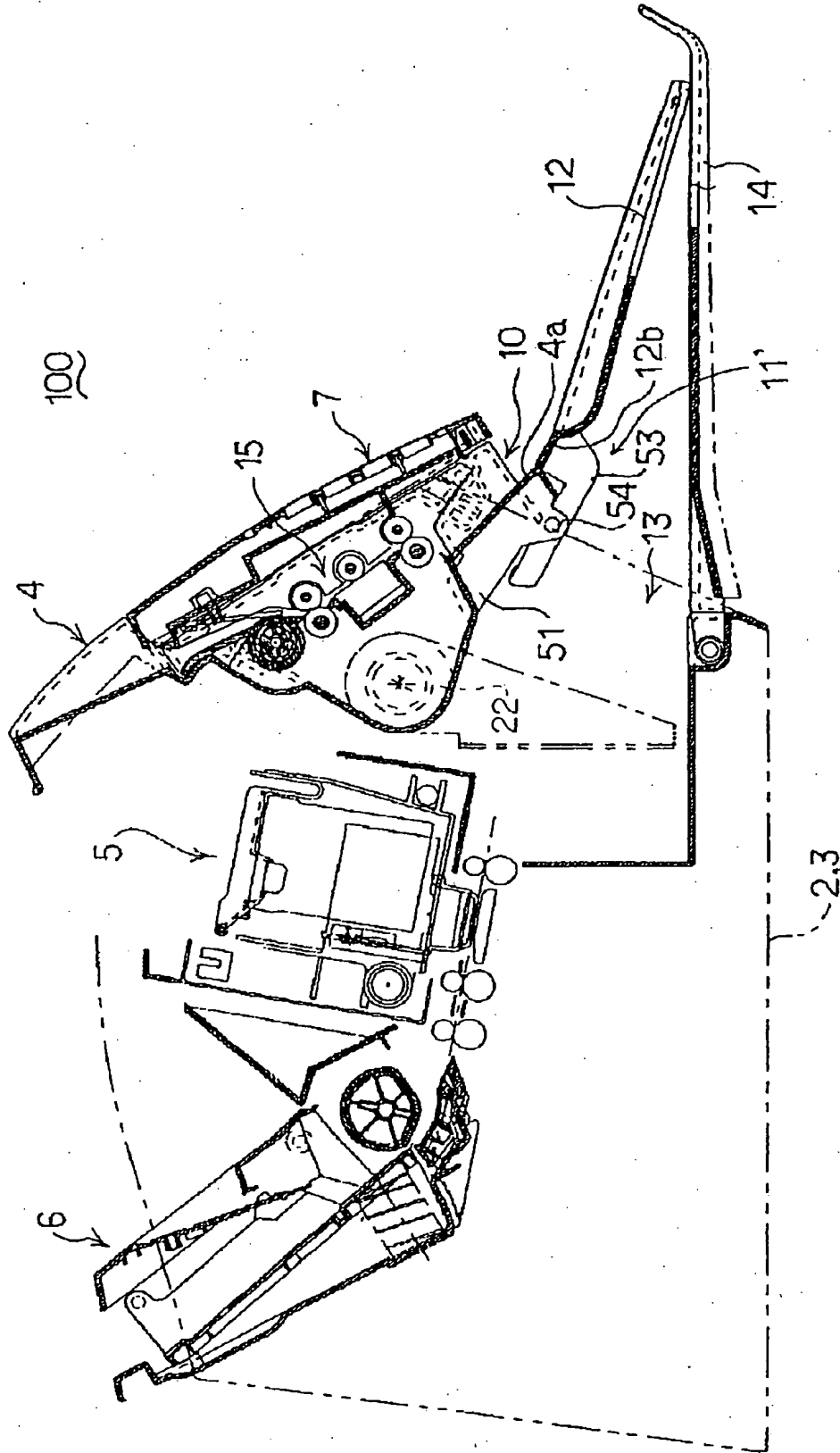




Fig. 9

